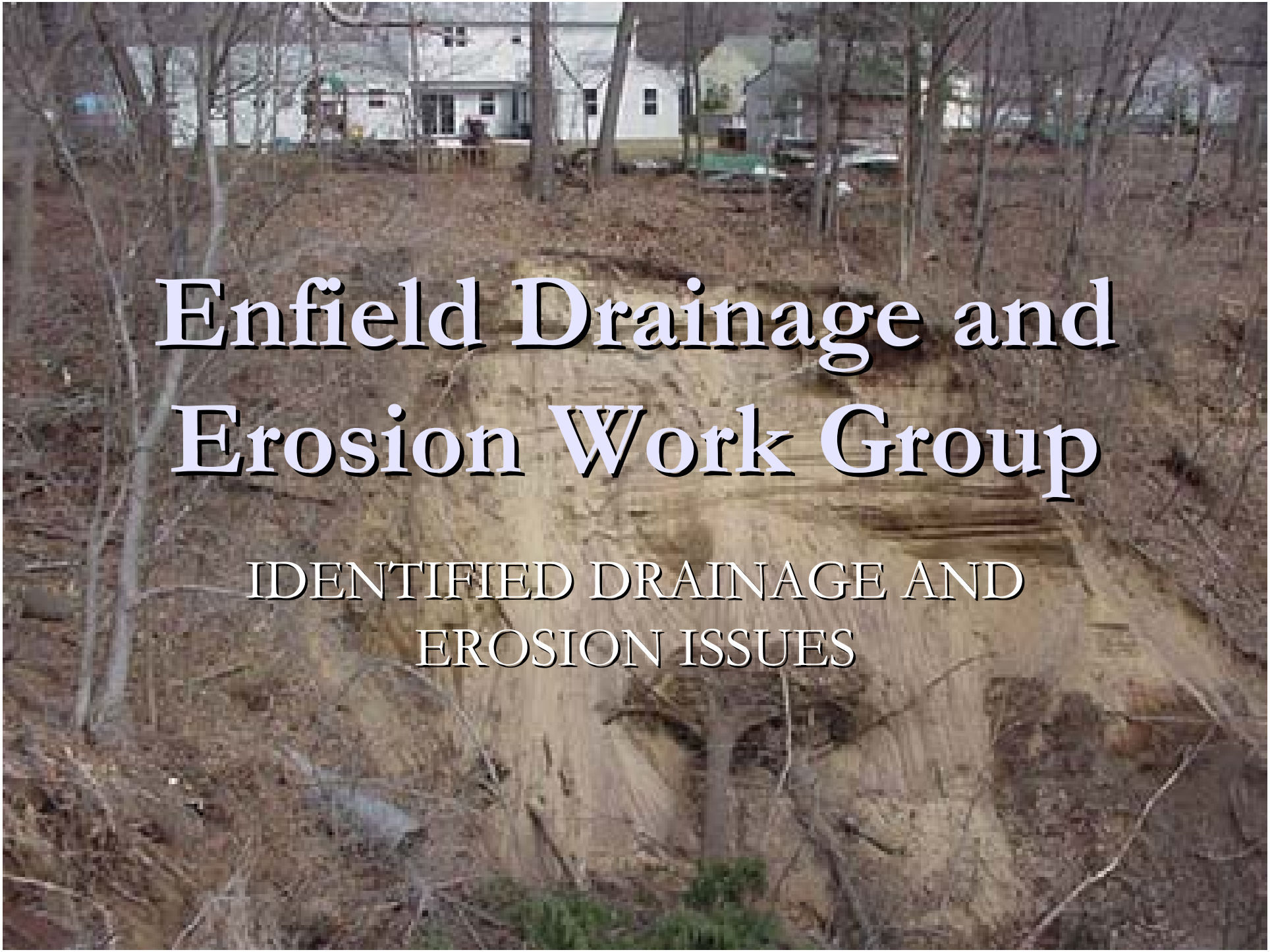


Enfield Drainage and Erosion Work Group

IDENTIFIED DRAINAGE AND EROSION ISSUES

Overview of Enfield
From an Erosion / Drainage Perspective

- Total Area: 33.8 Square Miles
- Paved Roads (not including State Roads): 182.4 Miles
- Number of Watersheds: 8
- Largest Watershed is Freshwater Brook: 9.5 sq. miles

Results of Workgroup

- Work team members:
  - John Cabibbo, Assistant Town Engineer
  - Kimberly Doherty-Marcotte, Deputy Director of Finance
  - Maria Elsden, Sr. Assistant Town Attorney
  - Piya Hawkes, Director of Public Works
  - Steven Sadlowski, Assistant Town Planner / Wetlands Agent
  - Bill Sperrazza, Highway Superintendent
  - William Strachan, Risk Manager
  - Dan Vindigni, Assistant Town Manager
- Held weekly meetings to identify sites
- Gathered information on sites including pictures and estimates to repair (general estimates)
- Divided problem areas into groups: Erosion, Flooding, Street Drainage and Other issues

Goals for this Meeting

- Make council aware of severity of problem
- Give basic information on each problem area including the severity, ownership and a rough estimate to repair
- Allow council to ask questions and start working on a plan to deal with these issues including:
  - Prioritizing projects (possibly eliminating some)
  - Establishing a funding strategy (may vary by project)
- To eventually prepare RFQ's or do in house engineering, go out to bid and start repairs
- Consider a bonding referendum for the November 4 general elections

First Group : Erosion Problem Areas

- The most severe and costly problems
- Project scope / cost increases with time
- Some caused by Town drainage, others by natural or other forces
- Most in Terrace Escarpment Soils – very unstable soil type that is typical near the Scantic
- Eroded materials damage the ecology of downstream wetlands and waterways

Recommendations for Eroded Areas

- Prioritized sites will have full engineering reviews to design the best solution for each site
- Most will involve:
  - Permits from IWWA, DEP and Army Corps of Engineers
  - Re-shaping of existing area / removing unsuitable materials
  - Filling of voids with appropriate, stable fill
  - Armoring of steep or vulnerable slopes and waterways
  - Re-build or improve drainage, often including under-drains
  - Re-vegetation of slopes using turf-reinforcement mats
- Erosion is a constant – we are only **controlling** it

Success Stories

- JFK Middle School
  - Repaired MAJOR slope failure by re-building and improving drainage, re-filling area and stabilizing

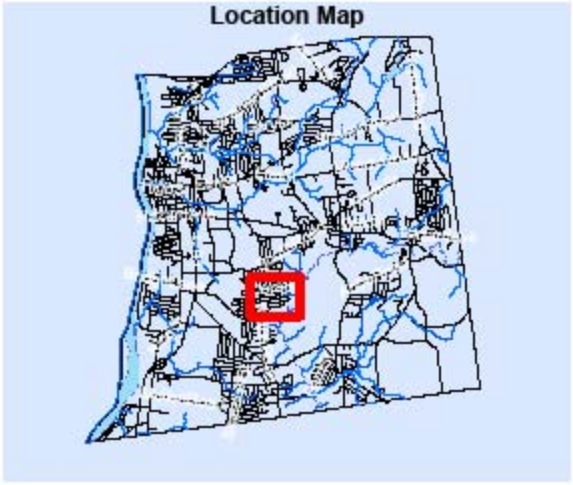
Before

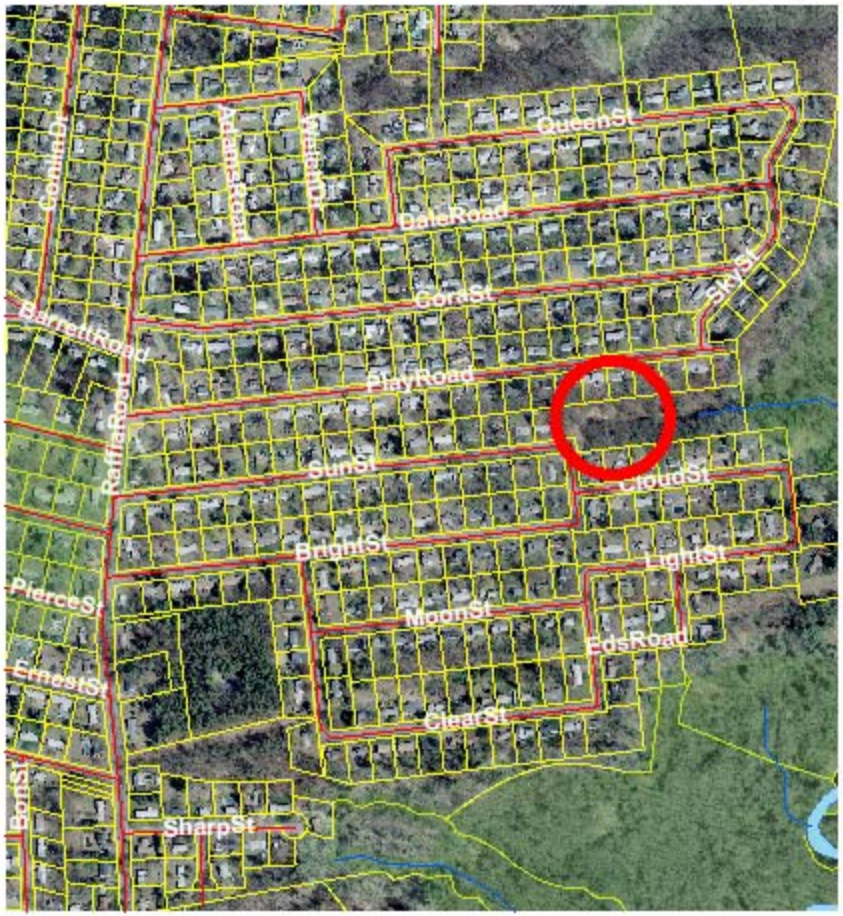
After

Other Success Stories

- Erosion issues corrected on Welch, Queen, and Cloud
- Flooding issues improved at Oliver, Old King, and Meadowlark
- Many street drainage issues corrected in the Road 2000 program

Sun Street Ravine



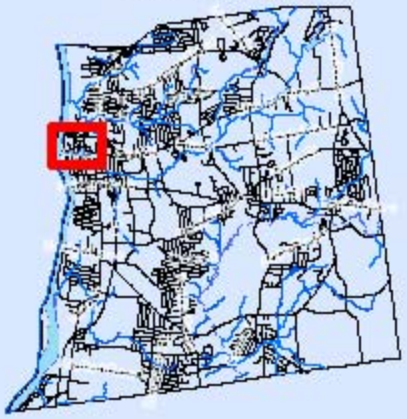


Sun Street Ravine – Town Owned

- Highly erodable soils along the side slopes
- Slope failures endangering private properties

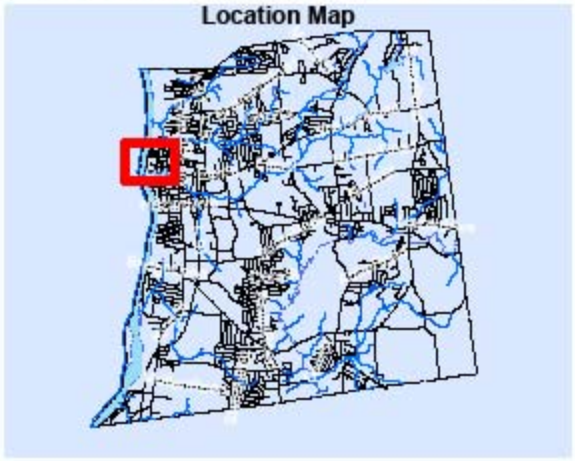
Freshwater Brook Wall

Location Map



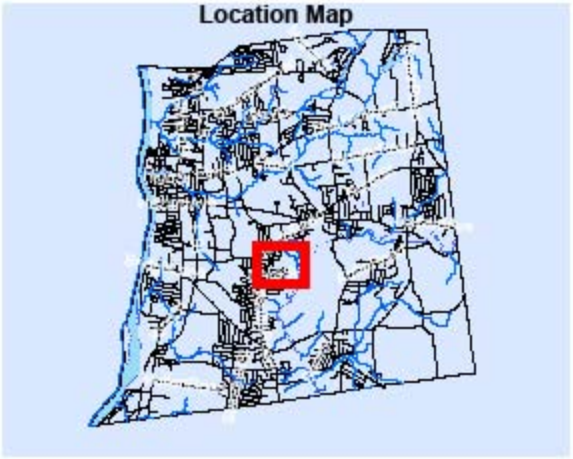
Freshwater Brook Wall – Additional Pictures

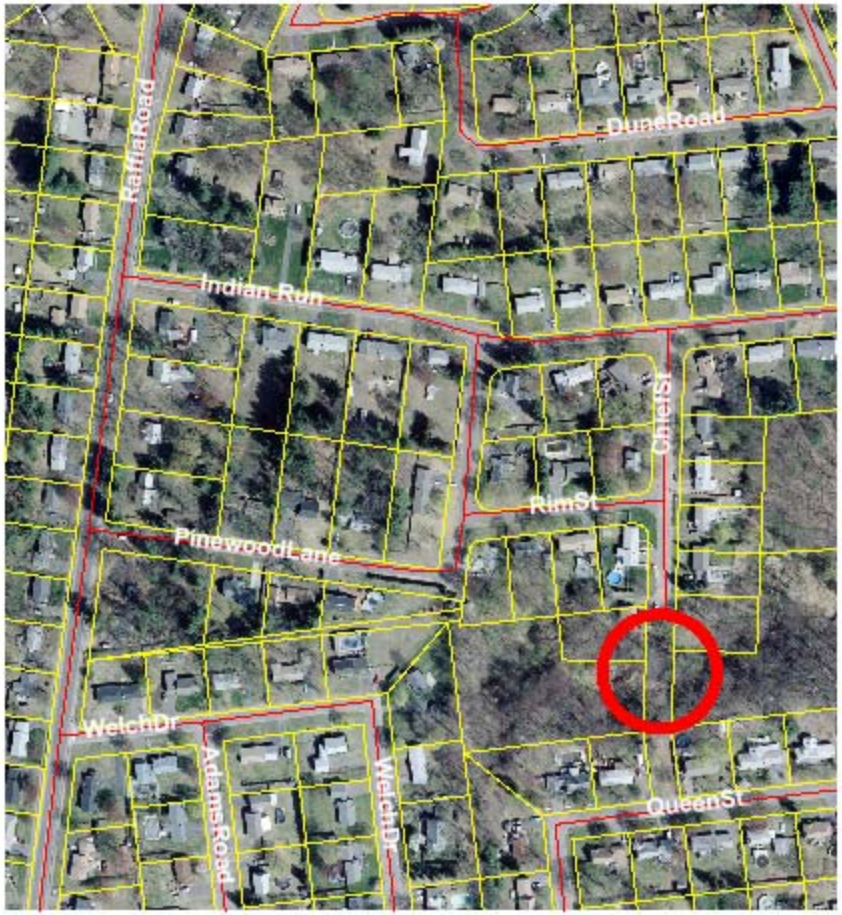
South River Street Boat Launch and Bridge



Boat Launch and Bridge Additional Pictures

Chief Street Erosion

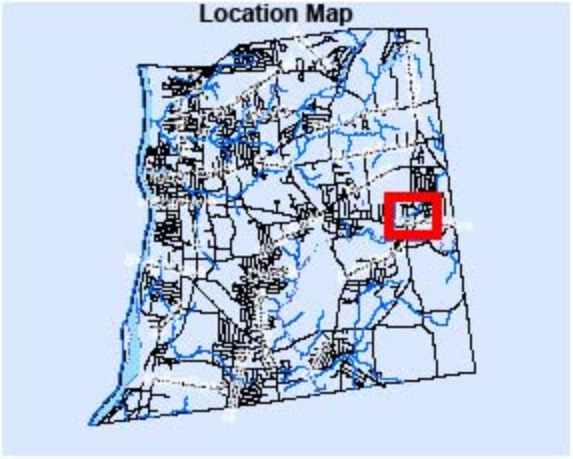


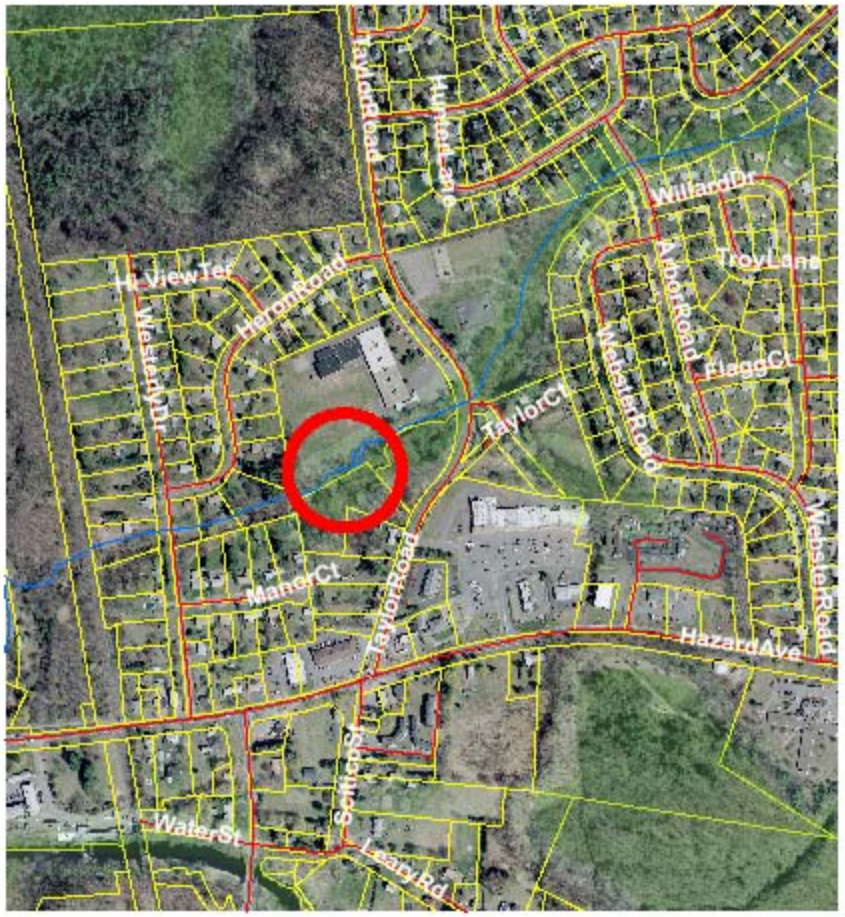


Chief Street Erosion

- Damaged Town drainage pipe
- Minor erosion around damaged pipe

Erosion of Terry Brook at Nathan Hale School

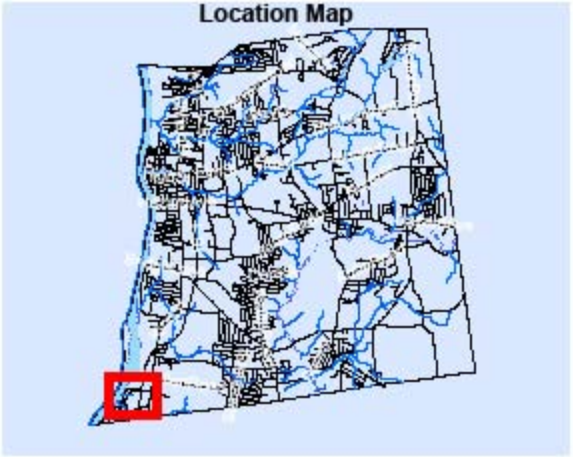




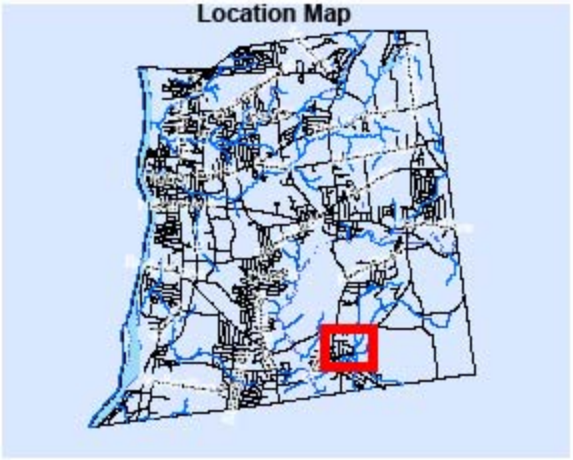
Erosion behind Nathan Hale School – Town owned

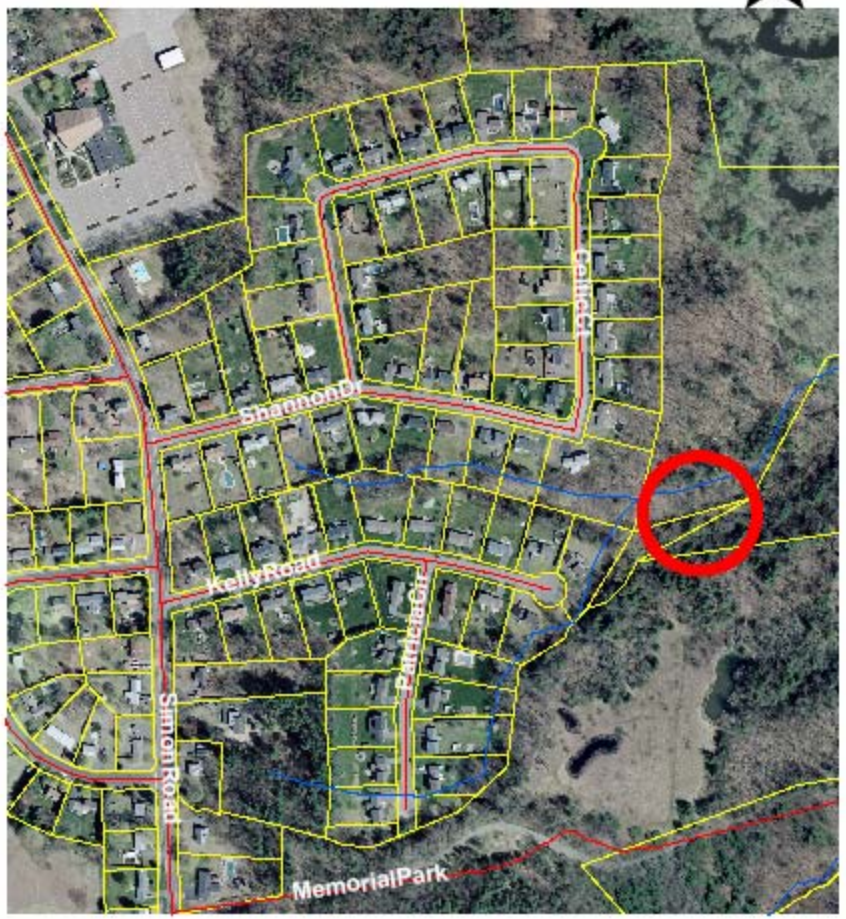
- Brook eroding the side slope – moderate in severity
- School field starting to dip in one spot – several severe rain events could lead to loss of portion of field – similar to JFK, though less severe

Old Abbe Road Erosion - Town Owned



22 Shannon Drive Erosion

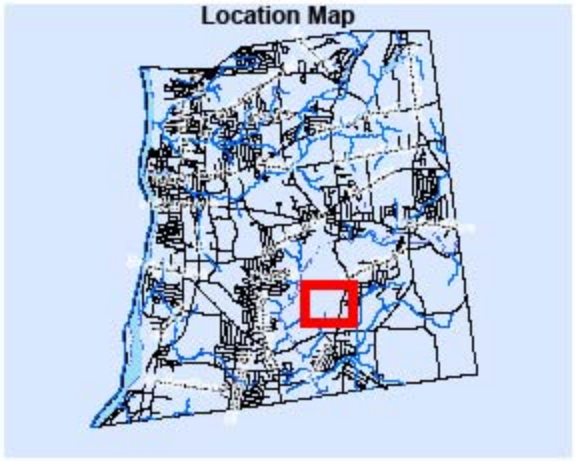




Shannon Drive Erosion – Town Drainage – easements in place

- 36” drainage pipe has disconnected and is causing erosion
- Large sink-hole also present

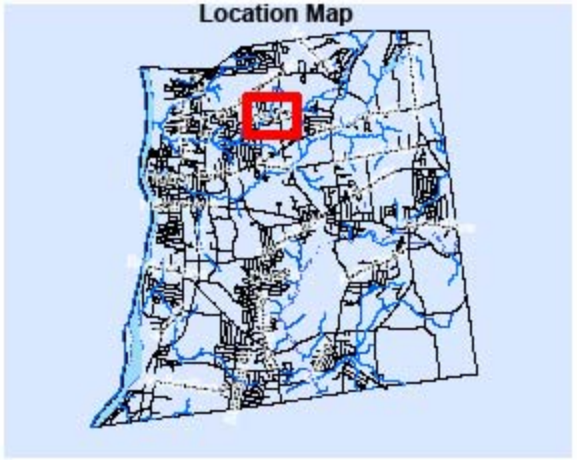
Transfer Station Detention Outlet - Town Owned

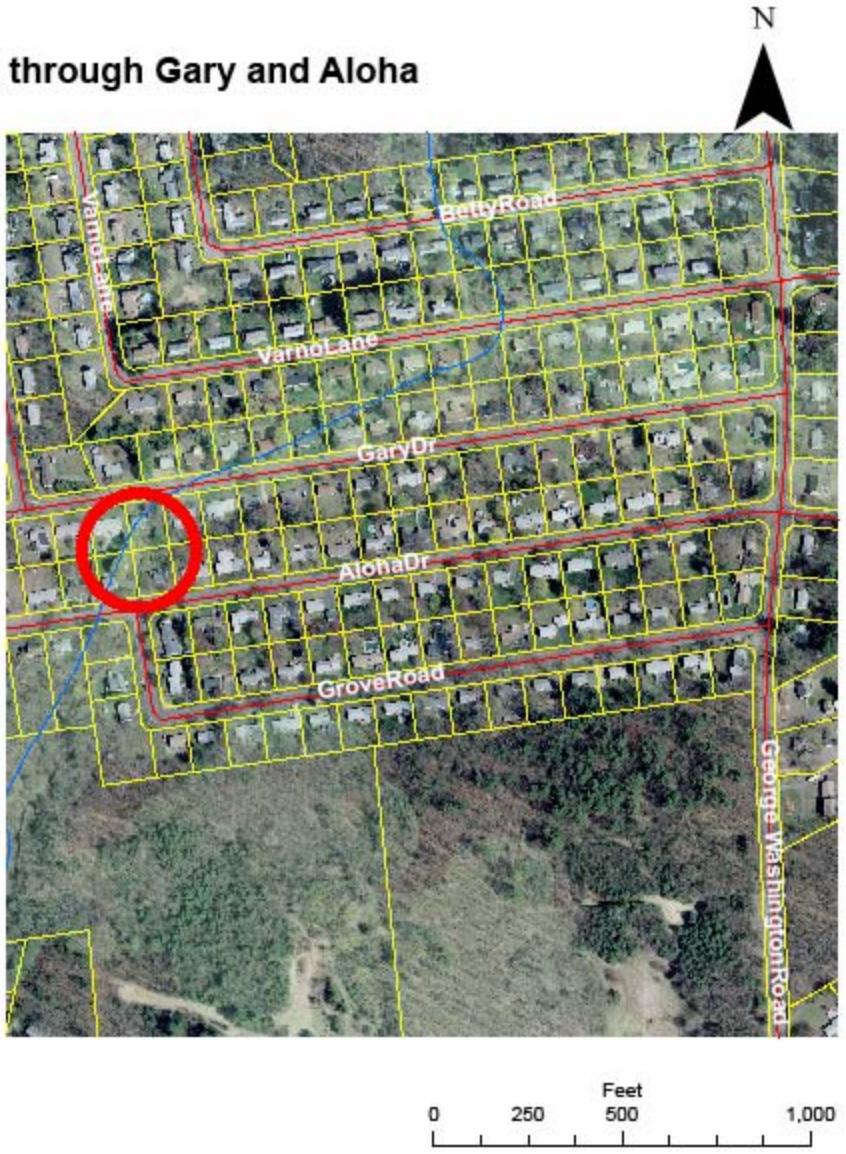


Transfer Station

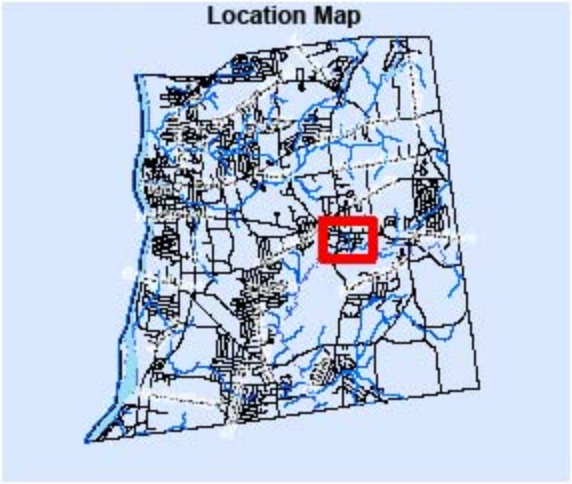
- Detention basin outlet pipe failed causing severe erosion in Terrace Escarpment Slope
- Fill material on site

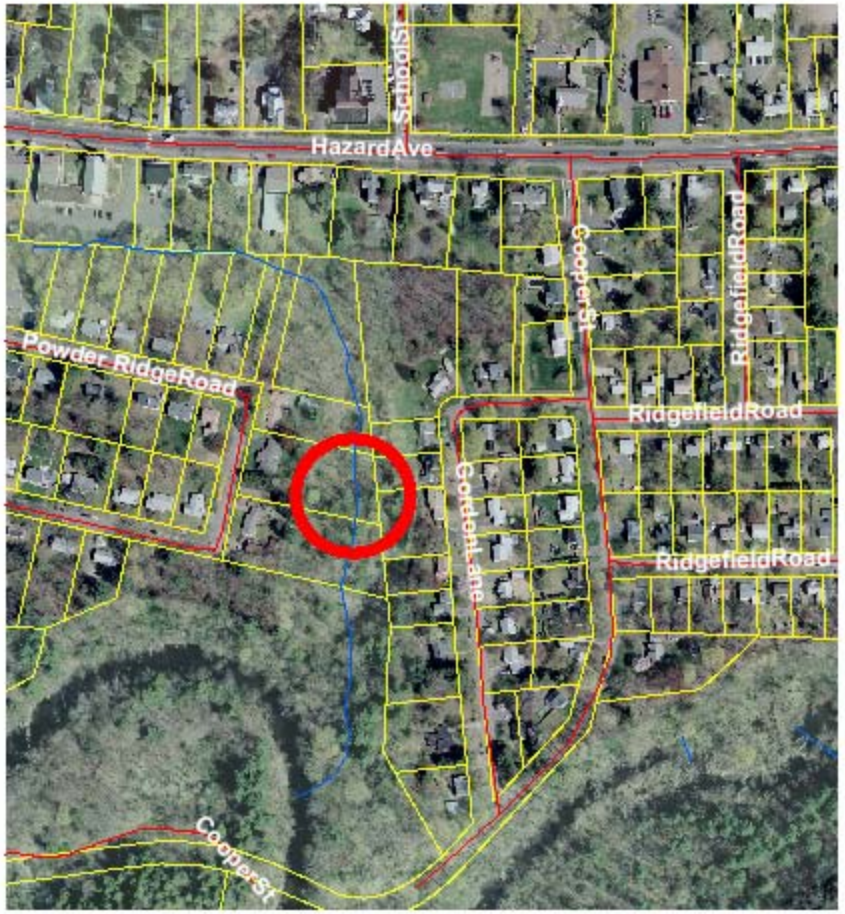
Grape Brook through Gary and Aloha





Gordon Lane Ravine



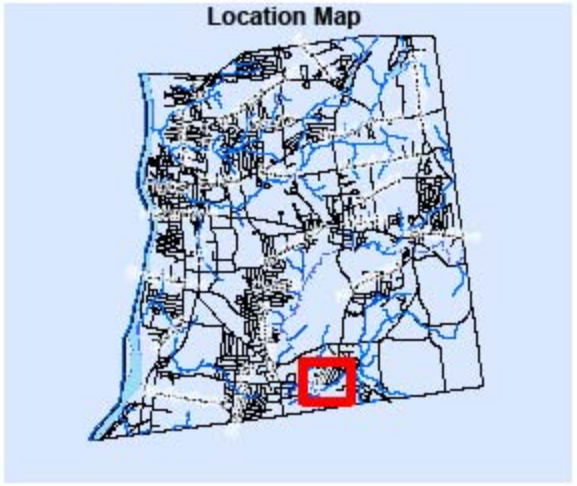


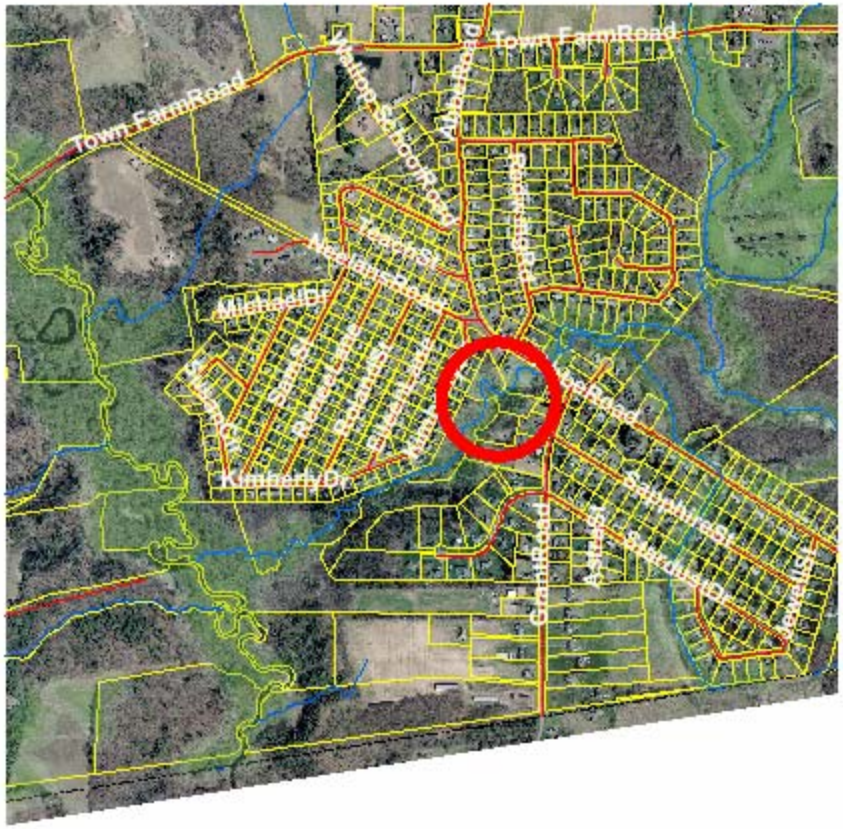
Gordon Lane Ravine – Private Property

- Portion of State RT 190 drains into ravine
- Small well-armored outlet from Gordon Lane (Town owned) drains into ravine
- Private improvements and dumping have affected area
- Very erodable soils – both sides of ravine failing
- Homes on Gordon and Powder Ridge affected
- Easements on 14 +/- properties needed

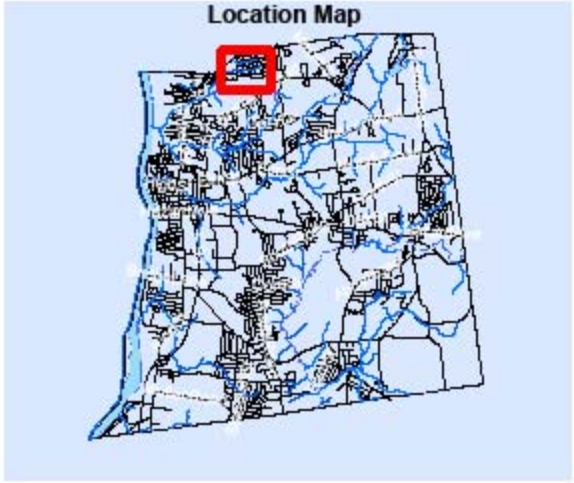
Gordon Lane – Additional Pictures

Buckhorn Brook at Kimberly Drive

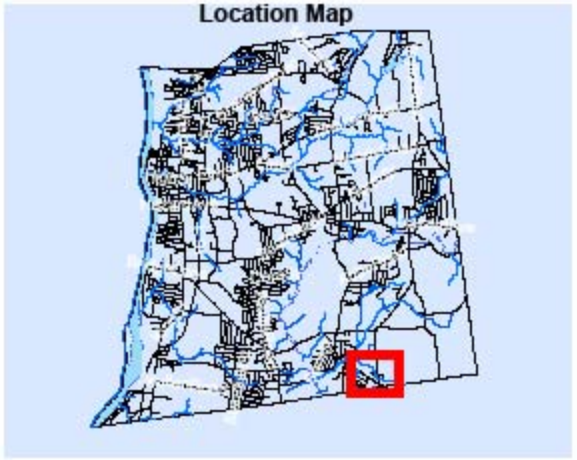


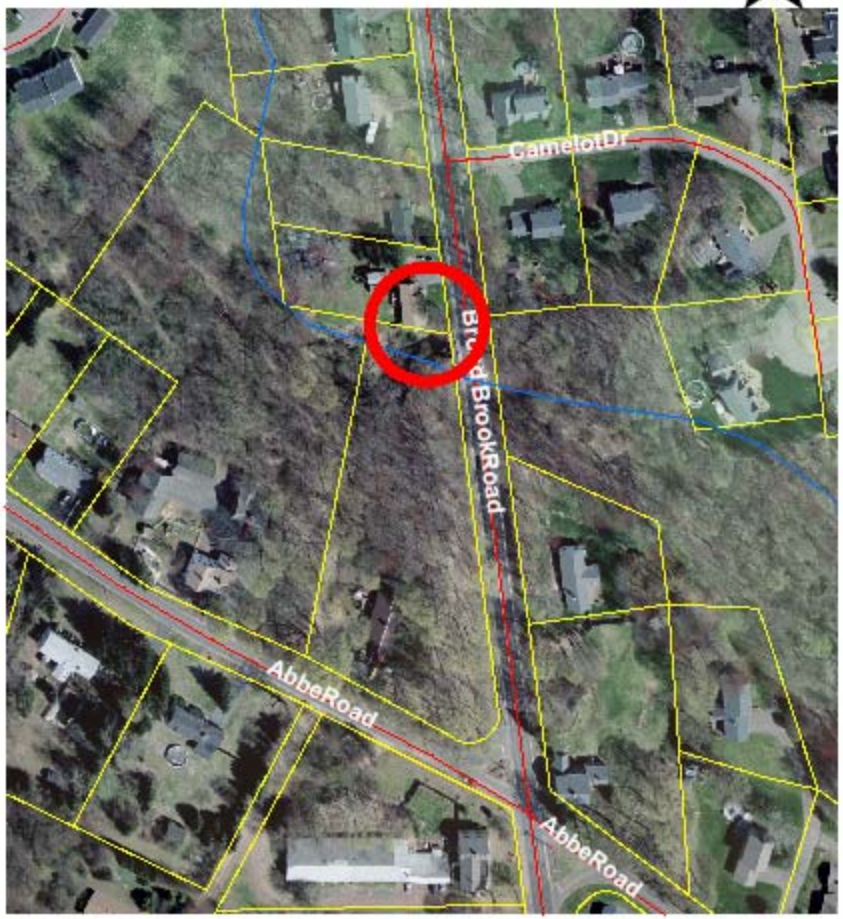


Tabor Road Channel



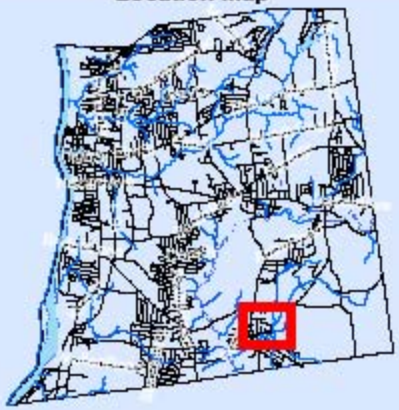
300 Broadbrook Road Erosion





Buckhorn Brook behind Sandpiper Erosion

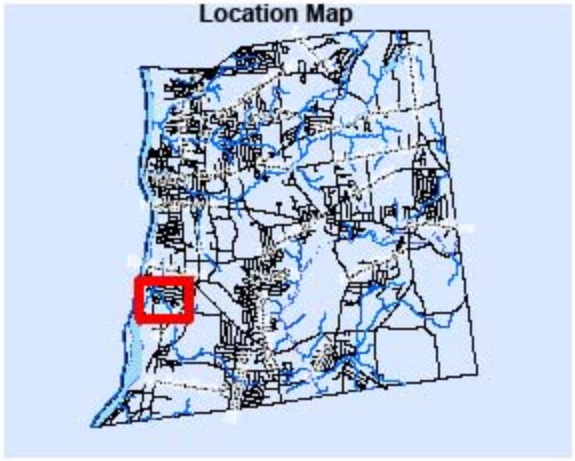
Location Map



Second Group
Flooding Problem Areas

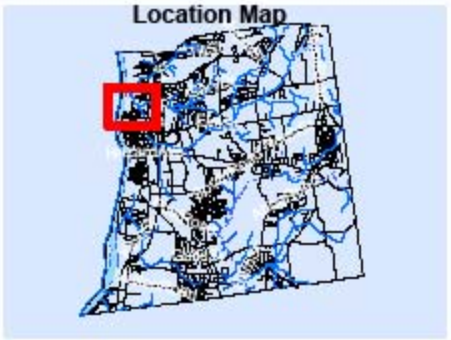
- Areas that flood in times of heavy rain
- Most involve undersized and/or obstructed waterways or culverts
- Most will require permits from IWWA, and perhaps DEP and Army Corps

Meadowlark Area Flooding Isssue



Lynch and O'Hear Flooding Issue

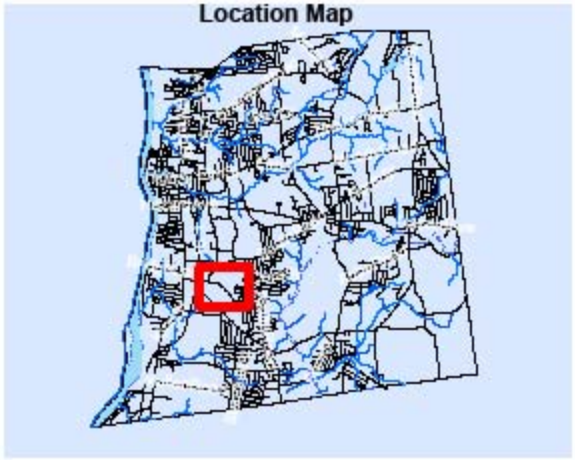
Problem invoves the underpass at RT 5, which is undersized. In times of heavy rain, the underpass backs up water into this area and causes flooding. Partial blockage of culvert increases this problem.



Freshwater Brook Bridge @ RT 5

Flooding at I-91

Post Road Curve - Flooding Issue



Post Road Curve Flooding

- Area overtops several times per year
- Problem is combination of an undersized pipe, level wetland area with slow drainage, and low road elevation.
- Solution involves replacing pipes with larger culverts and raising road

Third Group – Drainage Problems

- Are often problems with the road or its drainage system (or lack of a drainage system)
- Some involve re-construction of road Some are serious,

  some are a nuisance
- Turn to ice
- Sites on map

Third Group – Drainage Problems

- Locations:
  - Virginia Avenue
  - Allen Street
  - Somers Road
  - 15 North Street
  - Stephen Drive / Edmund Lane
  - West Forest Drive
  - Wilstar Circle
  - 359 George Washington Road

Fourth Group - Other Drainage Issues

- These are miscellaneous problems with pipes, outlets and other structures
- Some need immediate addressing – some are more of a nuisance
- Sites on map

Fourth Group - Other Drainage Issues

- Locations:
  - Sapphire Street (culvert headwalls)
  - Mullen Road (culver headwalls)
  - Still Lane (culvert)
  - Audrey Lane (outlet)
  - 25 Parker Street (pipe issue)
  - Belmont Avenue (pipe issue)
  - Summer Street (outlet)
  - Debbie Lane (outlet)

Recommended CIP Budgeting / Funding Strategy

- Total category A Projects:
  - Individual projects which cost less than $50,000
  - Can be grouped into a single Capital Improvement Project Account
- Total category B Projects:
  - Individual projects which cost between $50,000 and $300,000
  - Can be funded over a 1 to 2 year fiscal period
- Total category C Projects:
  - Individual projects that cost in excess of $300,000
  - Require referendum approval to obtain sufficient funding

- Individual projects within each group have been assigned a priority rating based on the severity of their problem

Recommended CIP Budgeting / Funding Strategy

- Total category A work: $200,100
- Total category B work: $1,017,750
- Total category C work: $4,128,500

- Recommend a combined, “Pay as you go” & “Pay over time” approach.

Recommended CIP Budgeting / Funding Strategy (cont.)

- Ongoing erosion / drainage maintenance (category A): $100,000 per year
- Individual projects (category B): approximate total of $340,000 per year
- Detailed category B project schedule in handout
- Will address category A&B public projects identified in this report within 3 years
- **Strongly recommend continued annual funding of $100,000 for erosion / drainage maintenance beyond this 3-year period**

Recommended CIP Budgeting / Funding Strategy (cont.)

- Current estimated category C work: $4,128,500
- Amount still needs to be finalized

- Referendum Recommended

  November 4, 2008 Election Day

Recommended Annual CIP Budgeting Strategy

FY 08-09		FY 09-10		FY 10-11	
Category A	$100,000	**Category A**	$100,000	**Category A**	$100,000
Category B:		**Category B:**		**Category B:**	
South River St.	$172,500	Chief St.	$138,000	Transfer Station	$138,000
Stephen/Edmund La.	109,250	West Forrest Dr.	103,500	Parker St.	51,750
Audrey La.	57,500	Mullen Rd.	103,500	Belmont Ave.	86,250
				Still La.	57,500
Category B Total:	**$339,250**	**Category B Total:**	**$345,000**	**Category B Total:**	**$333,500**
TOTAL A & B:	**$439,250**	**TOTAL A & B:**	**$445,000**	**TOTAL A & B:**	**$433,500**

Fiscal Impact of Bonding

Bond Issue: $5,000,000 - Interest Rate: 4% - Number of years: 10

Annual Principle Payment: $500,000 - 1 Mil = $3,200,000

					Estimated Annual Tax on Assessed Value	
	Principal	Interest	Debt Service	Mill Rate Impact	$160,000	$250,000
Fiscal Year High	500,000	190,000	690,000	.2156	$34.50	$53.90
Fiscal Year Low	500,000	10,000	510,000	.1594	$25.50	$39.85
Total Bond Expense	5,000,000	1,100,000	6,100,000			

Risk and Legal Issues

- Risk Manager
- Town Attorney